

Statewide Wood Energy Teams Project Application – Part 2: Narrative Proposal and Program of Work

Arizona Biomass Enterprise Team

Submitted by:

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**Statewide Wood Energy Teams
Project Application – Part 1:
Cooperator Contact Information (FY2014)**

WERC USE ONLY
Proposal Number:

APPLICANT LOCATION State: Arizona

City: Phoenix

County: Maricopa

COOPERATIVE AGREEMENT AND PROJECT INFORMATION

Cooperative Agreement Applicant — Name of person officially responsible for cooperative agreement and funding requirements

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Key Project Contact — Responsible for management/coordination of the project; if named above, check here → ☐

Name: Patrick Rappold

Phone: 928-724-1425

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Title: Wood Utilization & Marketing Specialist

Organization/Company: Arizona State Forestry Division

Bureau/Division:

Section/Program: Forest Stewardship

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COOPERATIVE FUNDING AND PROJECT COST

Cooperator Funding: \$

Requested U.S. Forest Service Funding: \$

Funding Ratio (Cooperator: U.S. Forest Service): (:)

Total Cost: \$

Contents

A. Project Title	1
B. Length of Project	1
C. Costs	1
D. Abstract	1
E. Qualifications and Summary Portfolio of Team Members.....	2
F. Project Narrative	3
G. Program of Work.....	5
H. Project Outcomes, Annual Progress Reports, and Final Reports	7
I. Budget Summary and Justification in Support of SF-424A.....	8
J. Appendix I: Map of the Treatment Areas for the Four Forest Restoration Initiative	10
K. Appendix II: Map of the Treatment Areas for the Pinaleno Ecosystem Restoration Project on the Coronado National Forest	11

A. Project Title

Arizona Biomass Enterprise Team

B. Length of Project

Three Years from project being funding

C. Costs

	US Forest Service	Cooperator	Total
Year 1	\$36,833	\$43,434	\$80,267
Year 2	\$36,833	\$43,434	\$80,267
Year 3	\$36,833	\$43,434	\$80,267

D. Abstract

The White Mountain Stewardship Contract (WMSC), in Arizona, illustrated that business cluster development is critical to creating the needed infrastructure to cost effectively implement landscape scale projects on National Forests. The diverse group of businesses that became the back bone of the WMSC are able to utilize logs and fiber of various quality. The diversity of the business clusters is one of the factors that enables the ongoing salvage of the highly degraded trees from the 2011 Wallow Fire. With the onset of the Four Forest Restoration Initiative (4FRI) there is a need to scale up current business infrastructure and maintain a strong diverse group of forest product businesses.

Under the auspices of the Arizona Forest Health Council, a Biomass Enterprise Team will be developed to provide support for increased cluster development. The Arizona Forest Health Council is made up of individuals from academia, industry, and government whom collectively work on solutions to improve the resiliency and health of Arizona's forests. Developing vibrant and adaptive forest based enterprises is a strategic goal of the Forest Health Council. With funding from the US Forest Service Statewide Wood Energy Team, the Forest Health Council will task the Biomass Enterprise Team with identifying wood-to-energy projects that need financial or technical support. Allocation of financial support will be done through evaluation of submitted proposals to the Biomass Enterprise Team.

E. Qualifications and Summary Portfolio of Team Members (1.5 pages)

Jerry Payne, Deputy State Forestry, Arizona State Forestry; Phoenix, AZ

Lisa Henderson, Community Energy Program Manager, Arizona Governor's Office of Energy Policy; Phoenix, AZ

Donald C. Hollis, Business & Cooperative Programs Specialist - Renewable Energy Coordinator
USDA Rural Development, Pendleton, OR

Malena Bazurto, Apache County Grants Manager; Apache County, Saint Johns, AZ

Patrick Rappold, Ph.D., Wood Utilization & Marketing Specialist, Arizona State Forestry Division; Flagstaff, AZ - Dr. Rappold graduated from Virginia Polytechnic Institute & State University with a doctorate in Forest Products and Forestry. After graduation, Dr. Rappold worked for an engineered wood products manufacturer and a hardwood lumber concentration yard. Most of his work, in the private sector, focused on quality control monitoring and the drying of hardwood lumber. In his work with industrial lumber drying, Patrick gained extensive experience operating and troubleshooting high output wood fired boilers. With the Arizona State Forestry Division (ASFD), Dr. Rappold has spearheaded the division's forest utilization program and has provided technical assistance to numerous businesses. In the 2012 US Forest Service Forest State & Private Forestry annual report, the ASFD forest utilization program was recognized as a Markets and Resource success story.

Dennis Dwyer, US Forest Service, Region 3 Biomass Coordinator; Albuquerque, NM

Steve Gatewood, Greater Flagstaff Forests Partnership; Flagstaff, AZ

F. Project Narrative (3.5 pages)

The Arizona Forest Health Council (FHC) will serve as the lead organization for the Arizona Statewide Wood Energy Team. Established in 2007, the FHC was created by merging the state's Forest Health Advisory Council and the Arizona Governor's Forest Health Oversight Council. The FHC is composed of representatives from environmental groups, federal natural resource agencies, state natural resource agencies, conservation groups, municipal energy providers, and private forest industry. This mission focused organization has been tasked with increasing the resiliency and health of Arizona's forests through a cooperative approach that encompasses multiple stakeholders. The guiding foundation for the FHC is the Statewide Strategy for Restoring Arizona's Forests. This document was drafted through consensus based input using the best available science, related to forest restoration and forest health. Within the Statewide Strategy document there are action items to increase the use of woody biomass as part of an effort to make forest restoration and fuel hazard reduction projects more cost feasible. The Statewide Strategy provides guidance on identifying geographic areas that are high priority due to heavy fuel loading and threaten wildland urban interface areas. Along with guidance from the Statewide Strategy for Restoring Arizona's Forests, forest industry associations will also be used as a resource for identifying priority geographic regions and defining effective business clusters.

Leadership of the FHC is composed of two co-chairs who can assign subcommittees for specific tasks. A Biomass Enterprise Team subcommittee of the FHC will be formed to identify and evaluate potential wood-to-energy biomass projects in Arizona. The primary role of the Biomass Enterprise Team members will be to review and evaluate proposals submitted to the team. Additional roles of team members are presented in the table below

Table 1. Members and responsibilities of Arizona's Biomass Enterprise Team

Member	Role	Responsibilities
Jerry Payne	Co-Chair	<ol style="list-style-type: none"> 1. Reports team progress to the Arizona State Forester and the Natural Resource Advisor to the Governor of Arizona 2. Evaluates and reviews submitted proposals
Lisa Henderson	Co-Chair	<ol style="list-style-type: none"> 1. Reports team progress to the Director of the Governor's Office of Energy Policy 2. Evaluates and reviews submitted proposals
Patrick Rappold	Executive Secretary	<ol style="list-style-type: none"> 1. Coordinates communication between team members 2. Coordinates outreach 3. Evaluates and reviews submitted proposals
Donald Hollis Malena Bazurto Dennis Dwyer Steve Gatewood	Team Member	<ol style="list-style-type: none"> 1. Evaluates and reviews submitted proposals

Each of the Biomass Enterprise team members, listed in Table 1, has had extensive experience in the management and allocation of federal and state grants. Leveraging of funds to meet the 1:1 required match will be done using in-kind support and hard match from individual businesses and industry associations.

Solicitation of projects will be done using local networking sources and national media outlets. Local networking resources will include announcements in electronic newsletters originating from ASFD offices. Project solicitation using national media resources will be done by means of electronic newsletters published by the Forest Business Network (forestbusinessnetwork.com). Evaluation of submitted proposals will be done using a ten point scale based ranking system. The use of commercially viable technology and previous successes will weigh heavily in the evaluation process. Oversight of the project solicitation and evaluation process will be done by FHC and the ASFD grants manager.

Tentatively the bulk of the project outreach will be targeted at areas above the Mogollon Rim. Areas north of the Mogollon Rim are distinguished as forested with ponderosa pine and some mixed conifer stands. Most of the heavily forested National Forests are also located above the Mogollon Rim. Treatment areas of the 4FRI project are located almost exclusively above the Mogollon Rim. Appendix I provides an overview of how the 300,000 acres of 4FRI treatment areas span across four of Arizona's National Forests. A cluster of diverse forest product businesses are operating on the eastern portion of the Mogollon Rim. Through strategic business partnerships and some project funding it is anticipated that a number of these businesses could expand to the western portion of the Mogollon Rim. Additionally there are several businesses, below the Mogollon Rim, that utilize woody biomass and may have the ability to increase capacity. Increased capacity of these businesses, below the Mogollon Rim, foreseeably could assist in the cost effective implementation of the 5,754 acre Pinaleño Ecosystem Restoration Project (PERP) on the Coronado National Forest. Located in southeast Arizona, the Pinaleño Mountains rise up from semi-arid grasslands to an elevation of 11,000 feet. Restoration on this mountain ecosystem is being done to increase the resiliency of the forest and return the landscape to a fire adapted environment. Appendix II provides an overview of the location of the PERP treatment areas on the Coronado National Forest.

With the ramp up of in-woods operations related to the 4FRI project and other landscape forest projects, it is anticipated that a three year time frame should be adequate time frame to effectively meet the purpose of the project funding. A tentative timeline of the project schedule is presented in Table 2, of the *Program of Work* section. The media coverage of the 4FRI project has attracted investors to Arizona and will likely be a driving force behind

strong interest in the proposed initiatives that will be accomplished by the Arizona Biomass Enterprise Team.

G. **Program of Work** (3.5 pages)

The quick paced increase of forest restoration activities in northern Arizona has amplified the amount of woody biomass available for utilization. There is a strong need for current biomass consuming businesses to increase capacity in order for landscape scale forest restoration projects to be more cost efficient. Distances between National Forests and the businesses utilizing the biomass continue to be a barrier. Because of this it is strategically important to support the development of appropriate scaled businesses clusters, close to National Forests. A national model for cluster development of diversified forest enterprises is the White Mountain Stewardship Contract, in eastern Arizona. The eastern Arizona region encompasses Apache and Navajo counties, which demographically meet USDA criteria for classification as rural communities. Navajo county in particular is one of the poorest regions in Arizona.

The range of businesses operating in the WMSC area are able to utilize clean chips, whole tree chips, large diameter logs, small diameter logs, and most importantly fire damaged material. Along with supporting cluster development it is the goal of the Arizona Biomass Enterprise team to increase biomass utilization capacity in Arizona by accomplishing the following objectives:

1. Provide funding for preliminary engineering assessments of three wood to energy projects identified in pre-proposal planning conducted by the Arizona Forest Health Council
2. Provide funding to support a wood utilization and marketing specialist position with the Arizona State Forestry Division
3. Support the implementation of a large scale woody biomass utilization facility as part of the Four Forest Restoration Initiative, through technical and marketing assistance to Good Earth Power AZ, LLC and Campbell Global
4. Assist in the implementation of woody biomass utilization projects on the White Mountain Apache reservation
5. Provide financial assistance to the White Mountain Apache Timber Company, to commission a study that examines upgrading the sawmill's wood fired boiler system

The need for increased biomass utilization in Arizona is not only being driven by landscape scale forest restoration projects, but also new import phytosanitation standards from the country of Mexico. In 2012 the Mexico Secretariat of Environment and Natural Resources (SEMARNAT) finalized regulations (NOM-016-SEMARNAT-2013) that stipulates stringent phytosanitation regulation on imported solid sawn wood products. The new regulation

requires heat treatment of solid sawn wood products imported into Mexico. With limited dry kiln capacity in Arizona, there is a market driven need to install wood fired boilers as part of industrial dry kiln operations. Use of methyl bromide for lumber fumigation purposes is being phased out by the Environmental Protection Agency. The technology for wood fired boilers, in dry kiln operations, is scalable to meet various drying capacity goals and financial limitations. Compared to other states, regulations on industrial boiler operations in Arizona do not stipulate around the clock monitoring. When twenty-four hour monitoring for high output boilers, is required by law, it can often be a financial constraint on businesses. Being that Mexico is currently the largest market for solid sawn wood products, manufactured in Arizona, there will most likely be increased demand for woody biomass utilization in boilers for the purpose of heat treating lumber.

Monitoring of the projects funded through the Arizona Biomass Enterprise will be overseen by the Arizona Forest Health Council (FHC). The FHC meets quarterly at various locations throughout the state of Arizona. At the quarterly meetings the executive secretary from the Biomass Enterprise Team will present a brief report on current budgets, status of funded projects, and project identification work. The quarterly reports prepared by the Biomass Enterprise Team will be shared with the Wood Education Resource Center and posted online as part of the minutes from the quarterly FHC meetings. Preparation of the reports will be the responsibility of the Biomass Enterprise Team's executive secretary. A summary of the work done by the Biomass Enterprise Team will be compiled along with a concise budget statement, will also be provided to WERC, on an annual basis.

Social acceptance of wood-to-energy projects, in Arizona, has been undertaken by outreach efforts of the Four Forest Restoration Initiative. The social license for woody biomass utilization has been established as a tradeoff to smoke, from pile burning, polluting the viewscape. Outreach on the topic of biomass utilization will continue to occur in conjunction with ASFD's conservation outreach initiatives. Additionally there are tentative plans to further public education of the benefits of woody biomass utilization through joint projects with the School of Forestry at Northern Arizona University. Specifically the School of Forestry will examine the socioeconomic benefits of woody biomass utilization, in comparison to other fuel options and slash disposal methods. It is anticipated that two scholarly publications will be developed as part of the School of Forestry's participation with the Arizona Biomass Enterprise Team.

Project Timeline

Table 2. Tentative work plan for the Arizona Biomass Enterprise Team

Tasks	Schedule							
	2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Awarding of SWET grants from US Forest Service to states								
Finalization of Arizona Biomass Enterprise Team members								
Preparation & Solicition of RFPs for project(s)								
Evaluation and awarding of financial assistance to project(s)								
Progress report due to Forest Health Council								
Monitoring of funded project(s)								
Anticipated completion of funded project(s)								
Tasks	2016				2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preparation & Solicition of RFPs for project(s)								
Evaluation and awarding of financial assistance to project(s)								
Monitoring of funded project(s)								
Anticipated completion of funded project(s)								
Preparation of final reports to the US Forest Service								
Closeout of the SWET grant								

H. Project Outcomes, Annual Progress Reports, and Final Reports (.5 pages)

Based upon preliminary assessments by the Arizona Forest Health Council it is anticipated that the SWET grant could be used to fund feasibility and wood supply studies for at least three projects. The projects would consume woody biomass from local forest health improvement projects and incentivize forestry related economic activity in the respective communities. The desired result is that there is adequate infrastructure to fully utilize the by-products of the timberstand improvement activities being done by the Four Forest Restoration Initiative and other fuel hazard reduction projects.

In terms of reports and documents it is planned that a document will be produced, akin to Colorado State Forest Service's *Where Wood Works: Harnessing the Energy of Woody Biomass in Colorado*. Where applicable short narrative case study reports will be published that provide project cost figures, which will be useful for other organizations and institutions considering wood-to-energy projects. Annual progress reports and final reports will be submitted by ASFD's grants program office.

I. Budget Summary and Justification in Support of SF-424A (2 pages)

Budget Table

Categories	I <i>Forest Service Share</i>	II <i>Cooperator's Share</i>	III <i>Total</i>
1. Personnel	\$12,925	\$79,360	\$92,285
2. Fringe benefits	\$6,075	\$174	\$6,249
3. Travel	\$1,000		\$1,000
4. Equipment			
5. Supplies/Materials	\$500		\$ 500
6. Contractual (identify below)	\$90,000	\$2,500	\$92,500
7. Construction	Not Applicable		
8. Other (identify below)			
9. Direct charges	\$110,500	\$130,302	\$240,802
10. Indirect charges		\$48,268	\$48,268
11. Total	\$110,500	\$130,302	\$240,802
12. Percentage of Total	46%	54%	100%

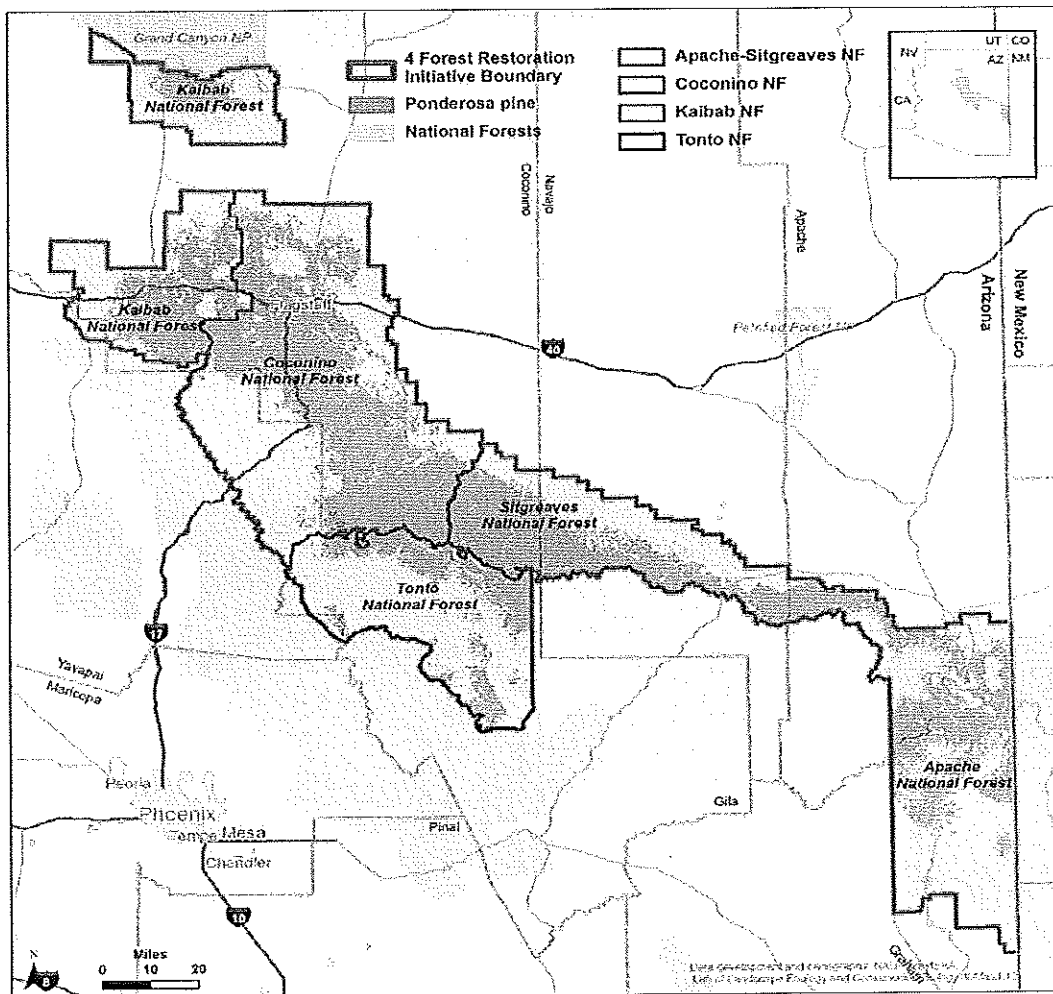
Explanation and details for Category 6 (Contractual): The \$90,000 contractual expense is the estimated expense for the following activities:

1. \$10,000 expense to contract with the School of Forestry at Northern Arizona University for production of one technical report on the socioeconomic aspect of biomass utilization in Arizona.
2. \$80,000 expense to contract with independent private contractors woody biomass supply studies and/or prefeasibility and preliminary engineering assessments.
3. The \$2,500 contractual expense is the negotiated cost of office space, in the Flagstaff District, provided to a wood utilization and marketing specialist employed by Arizona State Forestry. This contractual expense includes a percentage of the rent paid to the owners of the land where the Flagstaff District Office is located. Currently the Arizona Game & Fish agency is the land owner and the rental agreements are negotiated every two years.

b. Cooperator Contributions Table (not including U.S. Forest Service contributions)

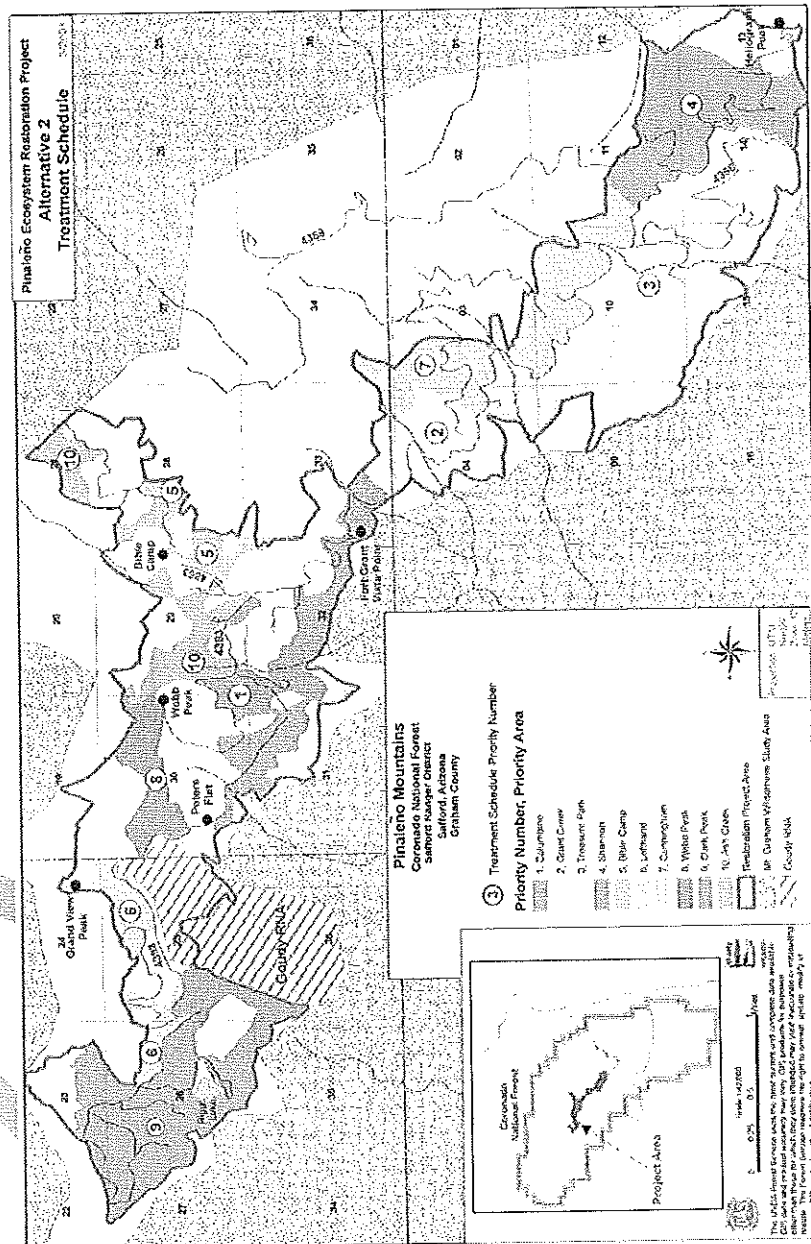
Cooperator	Cash	Materials	In-Kind Services	Total
Arizona State Forestry		\$2,500	\$31,526	\$34,026
Arizona Governor's Office of Energy Policy			\$30,519	\$30,519
Apache County			\$9,028	\$9,028
Greater Flagstaff Forest Partnership			\$8,287	\$8,287
Totals		\$2,500	\$79,360	\$81,860

J. Appendix I: Map of the Treatment Areas for the Four Forest Restoration Initiative



Map drafted by Forest Ecosystem Restoration Analysis team at Northern Arizona University

K. Appendix II: Map of the Treatment Areas for the Pinaleno Ecosystem Restoration Project on the Coronado National Forest



Map drafted by the US Forest Service, Coronado National Forest

J. Include the following information in the appendices:

1. *Letters of Commitment from Team Members or Institutions:* Include letters of commitment in an appendix; these are intended to display willingness to participate on the wood energy team. These letters need to include commitments of cash or in-kind services from all those listed in the SF-424 and SF-424A. Limit each letter of support to one page in length.
2. *Documentation of Team Member or Institution Experience with Wood Energy:* Provide additional information about team member or institutional experience with wood energy in this appendix.
3. *Documentation of Formal Agreements, Charters, etc. (optional):* Provide any written formal organizational framework that will guide the operation of the team such as Memoranda of Understanding, State incorporation papers, or other instruments that establish the capacity and ability of the team to function and manage its actions.
4. *Federal Funds:* List all other Federal funds received for this wood energy team within the last 3 years; include agency name, program name, and dollar amount.

Statewide Wood Energy Teams Project Application – Part 3: Required Financial Forms

Guidelines for Fiscal Year 2014 Application for Federal Assistance

The following forms need to be completed and submitted with your proposal:

1. SF-424: Application for Federal Assistance
2. SF-424A: Budget Information for Non-Construction Programs
3. SF-424B: Assurances for Non-Construction Programs
4. AD-1047: Certification Regarding Debarment and Suspension
5. AD-1049: Certification Regarding Drug-Free Workplace (or AD-1052 for States and State agencies)
6. AD-3030: Representations Regarding Felony Conviction and Tax Delinquent Status for Corporation Applicants
7. FS-1500-35: Certificate Regarding Lobbying Activities

These forms can be viewed at and downloaded from the following Web site:
http://www.na.fs.fed.us/fap/fap_forms.shtm.

Items to note when completing the SF-424 and SF-424A:

1. Catalog of Domestic Assistance number is **10.674**
2. Program name is **Forest Products Lab: Technology Marketing Unit**
3. Anticipated project start date should be around **August 1, 2014**

Please Note: If your proposal is funded, you must obtain a DUNS number from Dun & Bradstreet, and then register your organization at the System for Award Management Web site: www.sam.gov (formerly Central Contracting Registration). To verify that your organization has a DUNS number, or to take steps needed to obtain one, you may call the dedicated toll-free DUNS number request line at (866) 705-5711, or go to <http://www.dunandbradstreet.com>. When you submit your application through www.grants.gov, these items need to be completed before your application can be successfully submitted.

Each submittal must consist of two separate PDF (or Word) files, as follows: